

Product Specification Sheet

**Human Beta-Defensin 4 (hBD-4/BD-4) Protein**

Cat. # HBD46-R-5	Human recombinant purified HBD-4/BD-4 protein	<b>SIZE:</b> 5 ug
Cat. # HBD46-R-20	Human recombinant purified HBD-4/BD-4 protein	<b>SIZE:</b> 20 ug

Antimicrobial peptides are a common mechanism of host defense utilized by a variety of species, from insects to humans. Defensins are a large family of broad-spectrum antimicrobial peptides, identified originally in leukocytes of rabbits and humans. **Defensins**, cationic/polar peptides (30-35 aa; 3-4 kDa), are distinguished by a conserved tri-disulfides and a largely  $\beta$ -Sheet structure. Defensins, expressed at the cell surface, have been hypothesized to function as a biochemical barrier against microbial infection by inhibiting colonization of the epithelium by wide range of pathogenic microorganisms.

The genes encoding human  $\alpha$  and  $\beta$  -defensins are clustered in a contiguous segment of chromosome 8p23. Defensins are classified into two families designated  $\alpha$  - and  $\beta$  - based on distinctive, although similar, tri-disulfide linkages in the peptides.  $\beta$ -defensins are slightly larger and differ in the position and arrangement of 3 disulfides. In humans, six  $\alpha$  -defensin (**cryptidins**), **HD 1-6** (HD1-4 are also known as **HNP1-4** for Human Neutrophil Peptides), and two  $\beta$  -defensins, **HBD-1 and HBD-2**, have been identified to date. Rat (**RBD-1 and RBD-2**) and mouse (**MBD1-4**) homologues of the human beta-defensin have also been identified.

BD-4 is expressed in testis, stomach, uterus, neutrophils, thyroid, lung and kidney. In addition to its direct antimicrobial activities, BD-4 is chemoattractant towards human blood monocytes. Recombinant human BD-4 is a 6.0 kDa protein containing 50 amino acid residues.

**Source of Antigen and Antibodies**

Human defensin-4 (hBD-4; 50 aa): Mol wt. 6 kDa

**Sequence**

Glu-Leu-Asp-Arg-Ile-Cys-Gly-Tyr-Gly-Thr-Ala-Arg-Cys-Arg-Lys-Lys-Cys-Arg-Ser-Gln-Glu-Tyr-Arg-Ile-Gly-Arg-Cys-Pro-Asn-Thr-Tyr-Ala-Cys-Cys-Leu-Arg-Lys

**Disulfide bridges** Cys6-Cys33; Cys13-Cys27 and Cys17-34

HBD-4 was synthesized, cysteine oxidized and purified to >98% purity.

Mol wt: 4366.1

Formula C180H295N63O52S6

**Form & Storage**

**Purified HBD-4 protein** is provided in PBS in solution or in powder form. Reconstitute powder in distilled water at

100 ug/ml or more. We recommend making stock solution in buffers containing BSA as carrier protein for stability. Other buffers can be used to make working stock solution. It has no additives or preservatives. The solution can be stored at 4°C for 1 week or frozen at -20°C or below for long term storage. Lyophilized vials should be stored frozen until usage. It is not recommended to store diluted working solutions (<100 ug/ml). Avoid repeated freeze and thaw.

**Form & Storage of Antibodies/Peptide Control**

**Storage**

**Short-term:** unopened, undiluted liquid vials at 20°C and powder at 4°C or -20°C..

**Long-term:** at -20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -20°C or below.

**Shipping:** 4°C for solutions and room temp for powder

**Recommended Usage**

**Western Blotting** use 100-500 ng/lane and probe with appropriate antibodies.

**ELISA:** Control protein can be used to coat ELISA plates at 1-10 ug/ml and detected with antibodies (1:10-50K for neat serum and 0.5-1 ug/ml for affinity pure).

**Recombinant purified human BD-4 is also available (#HBD45-R-5 & #HBD45-R-20).**

**General References:**

Jia HP et al (1999) gene accession # AF155882; Harder et al (1997) Nature 387, 861; Ganz T (1999) Science 286, 420; Yang D et al (1999) Science 286, 525.

(2) Citations of ADI's Antibodies (see web site for updated list)

Nardo AD2003, J. Immunol.,170: 2274 – 2278, IHC  
DORSCHNER RA, 2003, Pediatr. Res., 53: 566 – 572, IHC

\*This product is for In vitro research use only.

**Related material available from ADI**

Antibodies alpha and beta-defensins and MMP7

**Human HBD-14 ELISA kits and antibodies**

HBD46-R-25-100

80128A

**India Contact:**

**Life Technologies (India) Pvt. Ltd.**

306, Aggarwal City Mall, Opposite M2K Pitampura, Delhi – 110034 (INDIA). Ph: +91-11-42208000, 42208111, 42208222, Mobile: +91-9810521400, Fax: +91-11-42208444  
Email: [customerservice@lifetechindia.com](mailto:customerservice@lifetechindia.com) Website: [www.lifetechindia.com](http://www.lifetechindia.com)